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Factors influencing job attainment in recent Bachelor graduates: evidence from Australia

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FACTORS INFLUENCING JOB ATTAINMENT IN RECENT BACHELOR GRADUATES: EVIDENCE FROM AUSTRALIA

INTRODUCTION

The importance of students successfully attaining full-time employment in their chosen profession cannot be underestimated. Higher education is a significant investment (Ward, McAdie, Bravington and King 2012) and has associated opportunity costs, such as reduced workplace experience and lower earnings. Above all, the degree is considered by students as a means of achieving employment (Australian Bureau Statistics 2010; Roy Morgan Research 2009). As Lauder, Brown, Dillabough and Halsey (2006) declare, students are now demanding their rights as customers in a labour market which requires advanced credentials, seeing a shift from 'inquisitive' to 'acquisitive' learners. Favourable employment outcomes are vital for higher education providers to attract potential students which significantly fund their operations (Bourner and Millican 2011). Further, sufficient student enrolments are needed to sustain graduates' instrumental role in enhancing organisational effectiveness, national productivity and global competitiveness (Glover, Law and Youngman 2002).

Evidence of graduate employment outcomes provides a mixed picture. Graduate Careers Australia [GCA] (2012b) indicates the long-term prospects for graduates are superior to those of non-graduates. It does, however, note a 9% decline in graduate full-time employment since 2008. This has flattened over the preceding two years, denoting a lingering effect from the global financial crisis amidst concerns for economic stability. There does not appear, however, to be an impact on the salary differential traditionally associated with graduate employment with median earnings 20% higher than the average 20 to 24 year old in Australia (GCA 2012b). Further, recent estimations of the internal rate of return for completing a

degree indicate 85% of Bachelor graduates working full-time are financially better off than the median person graduating from high school (Norton 2012).

Although evidence in Australia largely suggests there is a positive education effect on employment outcomes, ongoing economic stagnation in the UK and US has caused a serious downturn in graduate labour markets with rising graduate unemployment and the erosion of traditional salary premiums (Accenture 2013; Purcell et al. 2013). Concerns for the impact of economic instability on job prospects (Ross 2012) and wavering graduate optimism on future careers (Purcell et al. 2013) urge shared understanding of those factors influencing job attainment. Although there are employer-based studies which identify and prioritise key graduate recruitment and selection criteria (Association of Australian Graduate Employers [AAGE] 2012), analysis of actual employment outcomes is limited in Australia (e.g. Caroll and Tani 2013; Coates and Edwards 2011).

This study aims to examine what influences graduate job attainment to assist in identifying strategies for enhancing outcomes in Australia's increasingly soft graduate labour markets. The research objective is therefore to investigate determinants of full-time job attainment in recent graduates of Bachelor degree programs in Australia. This will be addressed using data gathered in the Australian Graduate Survey (AGS) in both 2011 (n=28,246) and 2012 (n=28,009). The paper is structured to first identify factors which influence job attainment, using background literature, followed by an outline of methodology and limitations of the study. Results are then presented and implications for relevant stakeholders are discussed.

DETERMINANTS OF JOB ATTAINMENT

It is important to clarify the difference between graduate employability and graduate employment outcomes. Pegg, Waldock, Hendy-Isaac and Lawton (2012) highlight tensions in conceptualising employability and the blurred boundaries between a graduate who is considered employable and one that is able to secure employment. As Pegg et al. assert, employability concerns a long-term strategy for enhancing professional well-being and career development prospects. According to well-established models (Dacre Pool and Sewell 2007; Kumar 2007), graduate employability requires developing a wealth of attributes, skills and knowledge which will assist graduates in applying their disciplinary knowledge in the workplace; as well as technical expertise, career development skills and engaging in extra-curricular activities and work experience.

In contrast, graduate employment outcomes are measures of achievement in the labour market. These include full-time job attainment, time taken to secure employment, salaries at different career stages and job characteristics (e.g. Coates and Edwards 2011; Corcoran, Stimson and Li 2011). There has been considerable variation among studies on the length of time elapsed since graduation; some concentrating on the long-term career pathways of graduates (e.g. Coates and Edwards 2011), some exploring employment outcomes only a short period post-graduation (e.g. Corcoran et al. 2011; Mason, William and Cranmer 2006) and others using a combined or longitudinal approach (e.g. Purcell et al. 2013). One example in Australia is the Beyond Graduation Survey (GCA 2013b) which explores employment outcomes three years post-graduation, therefore revealing graduate performance in real labour market conditions.

One would expect employment outcomes to constitute a reliable and valid indicator of graduate employability yet there is considerable noise influencing the recruitment and selection of graduates beyond the employability criteria which employers so audibly assert (Glover et al. 2002). Employment outcomes are often a poor indicator of employability (see Bourner and Millican 2011), the proxy measures not accounting for labour market characteristics such as competitiveness and the incidence of casual and part-time positions (Bridgstock, 2009; Smith, McKnight and Naylor 2000).

Predictor variables

Institution-related factors

Despite detailed reports defining and prioritising the recruitment and selection criteria of graduate employers, there is evidence to suggest that employers continue to recruit from particular institutions (Brown and Hesketh 2004). High status universities are favoured in Australia with new graduates from the Group of Eight (Go8), a collection of elite, world-ranked and research-intensive universities, less likely to be employed in jobs not requiring a degree (Li and Miller 2013). Smith et al. (2000) note there are institutional trends in graduate employment outcomes without any changes in the effectiveness of institutions. They argue employment outcomes are "greatly affected by institutional reputation, which is a very poor indicator of educational quality … There is little evidence that employers have an accurate and up-to-date picture of the educational quality of the institutions they employ graduates from, especially if they derive this picture from currently invalid league tables" (p. 41). Mode of study (on-campus versus off-campus) and attendance status (full-time versus part-time) may also be important to employment outcomes and warrant investigation. Further, previous studies indicate discipline impacts on employment outcomes (Coates and Edwards 2011; Li and Miller 2013).

Course quality

Knight et al. (2003) assert "good learning, teaching and assessment projects will be developing practices that are also likely to help students make good, well-founded claims to employability" (p. 3). Of course, what constitutes 'good' teaching and learning is hotly debated although the incorporation of reflective processes, experiential and action learning, authentic assessment and access to WIL opportunities are all considered important (Pegg et al. 2012). Pegg et al. acknowledge that although facilitating student access to the appropriate vehicles for enhancing employability is vital, effective teaching practice is also critically important.

Work experience

Relevant work experience during undergraduate studies is a key selection criterion for graduate employers (AAGE 2012) and a predictor of positive employment outcomes (Oliver 2011). Workplace experience comes in many forms. WIL, combining formal on-campus learning with internship and placement opportunities, is widely acknowledged as an important avenue for securing future employment (Jensen 2009) although Wilton (2012) asserts evidence of improved job attainment is lacking. Given the difficulties in establishing a national measure for WIL (Bourner and Millican 2011), as evidenced by its absence in the AGS, an alternative measure is employment during studies. The relevance of work experience is, however, important and age and social status may act as moderators with younger and advantaged students securing greater benefits (Brennan and Shah 2003). Further, volunteering (Bourner and Millican 2011) and service learning (Prentice and Robinson 2010) positively impact on employment outcomes.

Skill development

Employers expect graduates to not only have technical expertise but to be equipped with a wealth of generic skills. These typically comprise team working, communication, self-management, problem solving, analysis and self-awareness skills (AAGE 2012; CBI 2011). There is ongoing debate on skill requirements and their variations by discipline and/or international context; the relative importance of different skill areas (see Jackson and Chapman 2012) and best practice in their development and assessment. Skill development in undergraduate education is not without challenge; academic resistance typically focusing on concerns for the devaluation of higher education to its more vocational counterparts (Pegg et al. 2012). Employers consistently highlight generic skills as being of foremost importance when selecting graduates (AAGE 2012; CBI 2011; NACE 2012), implying a highly skilled graduate is therefore more likely to attain full-time employment upon graduation. Wilton (2011), however, argues there is no empirical evidence of high quality skill delivery in undergraduate programs, from the graduate perspective, resulting in better post-graduation employment outcomes, this lack of evidence echoed by others (Lowden, Hall, Elliot and Lewin 2011; Mason et al. 2006).

Graduate identity

Aligning with the need to develop an institutional culture which promotes employability (Pegg et al. 2012), the formation of a positive and productive graduate, or pre-professional, identity is an important determinant of employment outcomes. This identity concerns self-esteem and confidence (Nicholson, Putwain, Connors and Hornby-Atkinson 2013); professional networking skills (Pegg et al. 2012); an appreciation of the importance of lifelong learning and personal development, a better understanding of available career pathways, self-belief in an ability to secure and maintain employment and technical expertise

(Bridgstock 2009); and the capacity to transfer acquired skills and knowledge across different contexts (Jackson 2013a). Identity formation broadly equates to Glover et al.'s (2002) notion of graduateness and Holmes' (2013) 'processual' perspective of employability where an individual must 'become' a graduate by "act(ing) in ways that lead others to ascribe to them the identity of being a person worthy of being employed (i.e. in the kind of job generally considered appropriate to someone who has been highly educated)" (p. 549). Although recent literature largely appears to be at the stage of conceptualising graduate identity, there is some evidence that these traits and capabilities positively influence employment outcomes (Organisation for Economic Co-operation and Development 2002; Purcell et al. 2013).

Demographic characteristics and other factors

Age determines employment outcomes, mature graduates experiencing more difficulties in accessing suitable employment than their younger counterparts (see Wilton 2011). Wilton also notes that younger graduates may benefit more from employability interventions at university, such as skill development. Wilton found variations in employment trends by gender, supporting previous studies which indicate salary differentials (Webster, Castano and Palmen 2011) and better long-term employment prospects for male graduates (Coates and Edwards 2011). Coates and Edwards (2009) found those from non-English speaking backgrounds were less likely to be in full-time employment in their first year of graduation. There is also evidence of ethnic minorities reporting inferior job attainment outcomes to majority groups (Wilton 2011) and those with disabilities relative to those without (Riddell et al. 2010).

Job search strategies

Career management, including labour market awareness, networking and applying for positions, is increasingly acknowledged as important to graduate employability (Bridgstock 2009; Pegg et al. 2012). There is evidence, although Bridgstock argues somewhat limited, these skills will positively impact on employment outcomes (Mayston 2002) and that actively seeking work will result in more employment success (Krug and Rebien 2011). Students may search for jobs via centralised or Faculty-level university-based career services although these are criticised for focusing excessively on short-term employment outcomes (Watts 2005). Purcell et al. (2013) found no empirical link between take-up of university careers advice and graduate employment outcomes although there was evidence of a positive relationship between perceived quality of advice and job attainment. Strategic networking enhances employment prospects (Eby, Butts and Lockwood 2003) and having access to a social network, which is able to provide constructive and helpful careers advice, is also important (Purcell et al. 2013). Traditional job search strategies, such as responding to newspaper advertisements, online job searches and circulating résumés, also remain popular methods of seeking employment (McKeown and Lindorff 2011).

METHOD

Participants

Table 1 summarises the characteristics of Bachelor degree graduates sampled from the Australian national data set, *n*=28,146 for 2012 and *n*=28,246 for 2011. This sample comprised those available for full-time employment at the time of data collection and for whom data was available for each of the predictor variables. Graduates included those awarded a degree with honours and without; honours indicating completion of a research component. The analysed sample broadly aligned with the characteristics, in terms of

demographics and institution-related factors, of the full samples of Bachelor graduates for 2011 and 2012.

[**Insert Table 1**]

Instrument

The AGS is a national annual survey of newly qualified graduates of Australian universities and higher education colleges. For those students completing degrees with coursework, data is gathered using the Graduate Destination Survey (GDS) and Course Experience Questionnaire (CEQ). The GDS combines open and closed questions to gather data on the employment outcomes of recent graduates, as well as certain demographic/background characteristics, previous work history, continuing study and job seeking behaviour. The CEQ comprises 49 attitudinal statements to investigate the quality of completed degree courses. Participants must indicate their level of agreement with the statements, using a five-point scale ranging from 'strongly disagree' to 'strongly agree'. The statements relate to 11 different quality measures of their coursework degree: only the core areas of teaching quality, generic skill development and overall course satisfaction - comprising 13 items - must be administered by all institutions.

Predictor variables

Institution-related variables are defined in Table 1 and comprise attendance status, study mode and discipline. Institution type was captured by a nominal variable with Go8 and non-Go8 categories. Overall course quality was measured by a single item in the CEQ, encompassing areas such as teaching, learning, assessment and infrastructure. A composite measure, equally weighted across the six generic skill items, was computed to gauge skill development. Similarly, an equally-weighted composite measure was produced for the six

items relating to 'graduate qualities' to assess the degree to which a respondent's course enhanced their graduate identity. The scale items, Cronbach alpha (α) scores, means and standard deviations for skill development and graduate qualities are provided in Table 2. The alpha scores in both sample groups exceeded the accepted threshold of 0.7 (Hair, Black, Babin, and Anderson 2010), indicating the items were reliable measures of skill development and graduate qualities. Detailed discussion of how the items and scales were developed (see GCA 2012a) assures validity.

[**Insert Table 2**]

Regarding demographic characteristics, age was included as a continuous variable; gender, disability and residency status – domestic versus international - were dummy control variables. As recommended by GCA (2013a), the residency variable classifies students as domestic or international at the time of enrolment, irrespective of their status when completing the survey. Certain demographic data was populated by individual higher education providers, drawn from their student records using unique student identifiers from the student's GDS response. In this study, ethnic status was not examined given less than 1% of both samples comprised minority groups and more than 850 students in each sample failed to provide an ethnic affiliation. Outstanding variables include paid work experience, measured by employment in final year of study, and types of job search strategies used by respondents. Aligning with Purcell et al.'s (2013) categorisation of different graduate job search strategies, these were divided into traditional methods – including responding to job advertisements, registering with employment agencies and lodging speculative applications; university methods - capitalising on career development opportunities available via the awarding institution; and networking methods via professional contacts, family or friends. Note that respondents can select more than one type of job search method in the survey.

Outcome variable

The binary outcome variable, derived from GCA analysis, categorises graduates available for full-time employment into two groups: those actually in full-time work and those who were still seeking a full-time position and were either unemployed or employed part-time.

Procedures

The AGS is administered at an institution level and is completed twice-yearly in October and April, depending upon the respondent's time of graduation. Respondents have typically graduated four to six months earlier when completing the survey. Uniform distribution among providers is encouraged by GCA and the survey is administered at graduation ceremonies or by email, mail, online or telephone. GCA compiles the national data file which is released to participating higher education providers, along with reports to enhance teaching and learning practices, policy management and career development processes in higher education. In 2011, the combined GDS and CEQ survey was distributed to 231,858 recent graduates of coursework degree programs and 241,074 graduates in 2012. A 53.5% and 55.17% response rate was achieved for each year respectively. Of the 51 higher education providers which participated, response rates for individual institutions ranged from 15.9% to 83% across the two years (GCA, 2012a). Response rates for Go8 ranged from 44.6% to 63.3% for 2011 and 2012, removing concerns that significant variations from the norm may have prompted biased results.

Analysis

Base or omitted categories for categorical polytomous predictor variables, which were unpacked to create a set of binary dummy variables, are indicated by * in Table 1. Reference categories for binary categorical predictor variables are indicated by a (1) in Table 1. For

example, the gender effect on employment outcomes is explored for males which were coded '1' in the analysis. The entire AGS dataset for Bachelor graduates (those passing with and without honours) comprised *n*=80,891 graduates in 2012 and *n*=79,011 in 2011, including 32,232 in 2012 and 30,317 in 2011 who were not available for full-time employment and therefore excluded from the analysis. The sample was further reduced as data gathered on graduate identity forms a voluntary component of the CEQ. Binary logistic regression, the recommended technique by Hair et al. (2010), was used to analyse the resulting sample. Given logistic regression's intolerance for missing data among predictor variables, casewise deletion was conducted for all missing values. This equated to a reduction in the 2012 sample from 28,340 to 28,166 in 2012 and from 28,461 to 28,246 in 2011. The logistic model was initially tested using the 2012 data and the results validated using a comparative analysis with the 2011 data.

Limitations of study

The study uses self-report data which may be problematic, given evidence of participants overrating their skill capabilities (Jackson, 2013b) and inaccuracies in self-assessing levels of learning and development (Sitzmann et al. 2010). Gonyea (2005) identifies issues with respondents accurately self-assessing the impact of education on personal growth; raising concerns that graduate ratings may be inflated. Further, this study inherently assumes that graduate satisfaction ratings with skill development, graduate qualities and overall course quality are proxies for actual development in these three areas. As noted by Nair and Shah (2011),"the huge reliance on student happiness or satisfaction as a measure of educational quality also raises the question on the extent to which high student satisfaction assures academic rigor and student attainment of learning outcomes and generic skills" (p. 116).

Despite these limitations, self-report data can be both valid and reliable (Chan 2009; Gonyea 2005).

A further concern is the administration of the AGS to new graduates only four to six months post-graduation. Wilton (2012) found the occupational distribution of graduates after four months did not reflect their long-term employment outcomes, in alignment with other studies (Brooks 2012; Hillage and Pollard 1998). Smith et al. (2000) believe exploring very short-term employment outcomes does not allow for what Schwartz, Bransford and Sears (2005) term 'adaptive expertise', meaning graduate capabilities in operating successfully in new and unknown situations. Bourner and Millican (2011), however, argue the new graduates' experience in the labour market is indicative of their long-term prospects with unemployment at six months predicting they are more likely to suffer longer periods of unemployment in the first three and half years after university and are more likely to be employed in a non-graduate occupation in the future. Further, unemployment six months after graduation is associated with lower long-term earnings (Smith et al. 2000).

The AGS does not gather data on all variables known to influence employment outcomes, such as socio-economic status (Brown and Hesketh 2004; Pegg et al. 2012, Wilton, 2011); labour market characteristics, parental education, life experience and living at home (Purcell et al. 2013); geographical location (Smith et al. 2000); community engagement (Bourner and Millican 2011) and WIL. Coates and Edwards (2009), however, found only marginal evidence of variations by socio-economic status and no differences by parental occupations and 'first in the family' status for attending university. Importantly, the relatively stable Australian graduate labour market between 2011 and 2012 (GCA 2012b) may reduce the influence of the potential influence of labour market conditions.

RESULTS AND DISCUSSION

Preliminary analysis included casewise listing of standardised residuals. This identified 157 outliers, those with z-scores exceeding 3, in 2012 data and 221 in 2011 data which were removed from the samples. The absence of inflated standard errors among the coefficients refuted the presence of multicollinearity (Tabachnick and Fiddell 2007).

Analysis of 2012 data

Given the statistic's sensitivity to large sample sizes, a range of model fit measures were explored (Hair et al. 2010). Correct predictions were 70.9% for those seeking full-time work and 66.5% for those in full-time positions, with 67.8% of all cases being classified correctly. The chi-squared value and pseudo R^2 measure, Nagelkerke R^2, are recorded in Table 3. The Hosmer and Lemeshow (HL) test statistic was significant (p=0.000) although Paul, Pennell and Lemeshow (2013) recommend not to use this test for samples greater than 25,000 due to problems with overpower.

The regression coefficients for the 2012 data (n=28,009) are presented in Table 3. The Wald statistic, and its associated p-value, indicates the significance of each coefficient in predicting group membership, the groups being in full-time employment or seeking full-time employment. Significant (p<0.05) original coefficients (B) are indicated by an asterisk (*). A positive B value indicates the predictor increases the odds of securing full-time employment whereas negative coefficients indicate a decrease in predicted odds. Exponentiated coefficients, Exp(B), with values above one have a positive effect on the odds of achieving full-time employment while values less than one indicate that variable will make full-time employment less likely to occur. Notably, the effect size for continuous variables tends to be

smaller than for categorical variables (Hair et al. 2010). Interaction effects are presented as predictor one*predictor two. [**Insert Table 3**]

Graduating from a research-intensive (Go8) university increased the odds of attaining a full-time position by 38%. This aligns with previous studies which highlight reduced exposure to unemployment and higher wages among graduates from more prestigious universities (Purcell et al. 2013; Wilton 2011). Employers may believe the Go8 universities themselves are superior or that their graduates have higher prior ability, or perhaps a mix of both. Those graduating from elite universities, such as the Go8 group, can successfully leverage on their university's reputation. For others, understanding the importance of building a profile which represents personal excellence – in both disciplinary expertise and generic skills – and pursuing the development of a strong graduate identity from the outset is essential. This, in combination with other known factors which determine employability such as community engagement and participation in extra-curricular activities, may enhance chances of employment based on meritocratic processes.

Attendance status also significantly impacted on the odds of securing full-time employment with part-time students almost 19% more likely to attain a job than their full-time counterparts. This may be explained by a greater proportion of part-time graduates already working full-time prior to graduation. Cross-tabulations confirmed 32% of part-time undergraduates in 2012 had secured full-time employment prior to 1 May in their final year of study, in comparison with only 5% of full-time undergraduates. Compared to those completing a degree using a blend of on and off-campus learning, studying in off-campus mode significantly reduced the chances of employment by 30%. Less time on campus may have reduced their exposure to university-based career management strategies and processes

which encourage self-reflection on career pathways, increased labour market awareness and enhanced professional networking skills. The increasing demand for online learning (Allen and Seaman 2013) will inevitably bring evolution in its approach. A recently introduced MOOC (Massive Open Online Course) at Australia's Deakin University promises generic skill development through interaction with peers, experts and the discipline community. Exploring determinants in institutions which have introduced such innovative blended learning strategies may well produce different findings in the future.

Discipline has a relatively a strong impact on initial graduate employment outcomes. In their review of ten years of Australian graduate employment data, Li and Miller (2012) assert "it is what graduates studied, rather than where they graduated from, which made a large difference in their labour market outcomes" (p. 25). There was broad alignment with previous evidence of trends by discipline; strong employment outcomes in those graduating from Medicine-based degree programs and, to a lesser degree, Engineering with relatively poor performance from those in the Arts and Humanities and Other Science categories (Coates and Edwards 2009; Li and Miller, 2012; Purcell et al. 2013). Reduced chances of full-time employment, in comparison with those graduating from Medical/Health-based degrees, was most significant for 'Other Science' graduates who had a 73% reduction in odds. Both Li and Miller and Bridgstock (2009) highlight the importance of variations in labour market conditions by field on job attainment. For example, arts graduates tend to enter self-employment and/or casual or part-time positions because that is what their competitive sector dictates.

The higher graduates rated overall course quality, the greater the odds of achieving full-time employment. Discussion of best pedagogical practice to enhance both course quality and the

development of skills and disciplinary knowledge, such as the role of student-centred learning, industry collaboration, constructive alignment and authenticity, is abundant in the literature and beyond the scope of this paper. Clearly, however, stakeholders in undergraduate education must collaborate on all levels to create new knowledge, enrich teaching and learning and improve the curriculum (Ramakrishnan and Yasin 2011). Interestingly, paid work experience during the final year of study did not record a significant effect on the chances of attaining a full-time job. This, however, may reflect an ineffective measure for capturing the impact of relevant work experience for one's chosen profession and the benefits of time served in employment which is suggested by the positive and significant interaction effect for age and work experience.

In alignment with employers' assertion that they are actively recruiting graduates who can articulate and demonstrate mastery of certain generic skills considered critical for effective workplace performance, skill development increased the odds of securing full-time employment by 19%. This finding is positive, particularly given the momentum and resources allocated to the skills agenda in higher education, although the declining influence between 2011 and 2012 raises some concern. The greater effect of skill development on full-time employment outcomes in younger graduates is most likely attributed to interventions for enhancing generic skills having more impact due to less exposure to life and work experience.

The skills effect was, however, relatively modest and does not reflect the priority industry declares it is attributing to this criterion in selection practices. This may be due to the CEQ not fully capturing achievements in generic skills (Oliver 2013). It could otherwise reflect the difficulties graduates experience in articulating their skills in recruitment and selection

scenarios and the challenges employers face in accurately assessing graduate skill capabilities during selection processes. Effective stakeholder use of skill portfolios and better evaluation of résumés in light of key job success criteria (Cole, Field, Giles and Harris 2008) may augment the successful operationalization of the skills criterion in graduate selection practices. The reported skills effect precipitates further exploration of the relationship between skill development and graduate employment outcomes among higher education providers with different pedagogical approaches to identify best practice principles.

The development of a positive graduate identity significantly increased the chances of full-time employment by 10%. Understanding the importance of lifelong learning; self-confidence and high self-esteem; ability to transfer learning across different contexts and disciplinary expertise all feature prominently in dominant employability models and are considered vital for future personal growth and career success. They do not, however, always appear in national or institutional generic skill frameworks and their importance may therefore not be sufficiently appreciated by relevant stakeholders. Higher education providers must work collaboratively with industry partners in assisting students to understand the concept of graduate identity and develop strategies for nurturing it from the outset of their studies.

There was no evidence of a disability or gender effect. Notably, previous supporting evidence has highlighted variations in long-term prospects (Coates and Edwards 2011; Wilton 2011) and salary differentials (Webster et al. 2011). Age appears to matter; mature graduates having a labour market advantage with a one year incremental increase in age increasing the chances of full-time employment by 2%. This contrasts with Purcell et al.'s (2007) findings that mature graduates experienced more difficulty in accessing appropriate employment due,

essentially, to ageism and discriminatory practices among employers. Results also indicated that age moderated the impact of work experience on the likelihood of achieving full-time employment; the effect greater for more mature graduates although the main effect was, notably, insignificant. The 75% reduction in the chances of achieving a full-time job for those who were overseas residents upon enrolment is unsurprising and highlights the challenges for international students remaining in host countries beyond their studies.

Purcell et al. (2013) argued it is not the number of adopted job search strategies which is important but that those which a student selects are effective. The traditional approach of responding to advertisements, online searches or approaching employers/employment agencies almost tripled the chances of full-time employment. The importance of networking, including capitalising on family, social and work contacts, was affirmed with a 54% increase in the odds of job attainment. Although beneficial, the impact of university-based strategies – including advice from central careers services, careers fair/information sessions or via host Faculty – was relatively modest. This may reflect the quality and delivery of current career management provision which, Bridgstock (2009) argues, should start early, be mandatory, integrated into disciplinary provision and involve industry. It is important to note the job search variables are nested and overlap; the influence of traditional methods could therefore be inflated as graduates may also have adopted networking and/or university methods.

Validation of model using 2011 data

Model fit and regression coefficients using the 2011 data (n=28,025) broadly aligned with the 2012 results. Correct predictions of 69.4% for those seeking full-time work and 69.1% for those in full-time positions, with an overall hit rate of 69.2%. The chi-squared value and Nagelkerke R^2 are recorded in Table 4. Regression coefficients, presented in Table 4, were

remarkably similar to those generated for the 2012 data. There were only two predictor variables which differed: first, there was a 24% increased chance of employment for those studying on-campus; and, second, those with disability status were 36% less likely to attain a full-time job than those without.

[**Insert Table 4**]

CONCLUSION

This study has explored influences on full-time job attainment in recent Bachelor graduates of Australian higher education providers. Findings indicate that industry selection decisions broadly align with our understanding of what constitutes graduate employability, including technical expertise, generic skill mastery and a successfully formed graduate identity. It appears, however, that the graduate labour market allocates opportunity not only on merit but also on the basis of demographic factors – particularly age and residency status – and institution-related characteristics, such as study mode, full or part-time status and the awarding institution. Field of study plays a significant role in determining whether graduates successfully attain a full-time position when they initially enter the labour market.

It is important to reiterate that individuals are not "victims of the system" (Holmes 2013, p. 549) but have a degree of control over their employment outcomes. There are factors within the undergraduate and academic practitioner's locus of control which can enhance employment prospects, such as skill and identity development, engaging in effective job search strategies and providing high quality courses through effective teaching and learning. This notion engages with Holmes' processual perspective of employability where the formation of graduate identity manages interaction with the 'gatekeepers' to employment, in contrast to his 'possessive' perspective where employability is simply determined by the

acquisition of necessary skills and attributes and 'positional' perspective where factors relating to societal positioning will determine employment outcomes.

The study contributes to our understanding of those factors which influence graduate employment outcomes, alleviating a lack of empirical evidence in Australia. Findings are important for higher education providers who wish to improve outcomes to raise their institutional profile and attract more student enrolments. For undergraduates, the study identifies ways they can improve their career prospects. For industry, the study highlights prevalent discrepancies between what graduate employers say they need and what they are actually recruiting on and the need to ensure selection decisions are based on advertised criteria.

Future research should explore determinants beyond the parameters of the AGS. Studies which extend the dependent variable beyond the binary full-time employment outcome could examine determinants of contract, part-time and self-employed positions, increasingly prevalent in certain sectors (Bridgstock 2009), and over-education among graduates (see Caroll and Tani 2013; Li and Miller, 2012). There may be other interactions, such as discipline and sex, which may be useful to explore. Further, greater consideration of the role of differing labour market characteristics across disciplines would be beneficial, in addition to a more fine-grained analysis of different geographical regions.

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Table 1 Breakdown of sample characteristics

Characteristic	Sub-group	2011		2012	
		n	Valid %	*n*	Valid %
Gender	Male(1)	11623	41.2	11931	42.4
	Female	16623	58.8	16235	57.6
Age	0 - 24 years	19182	67.9	19410	68.9
	25 - 29 years	5214	18.5	5063	18.0
	30 - 39 years	2270	8.0	2121	7.5
	40 years and above	1580	5.6	1572	5.6
Disability status	Disabled(1)	681	2.4	921	3.3
	Not disabled	27565	97.6	27245	96.7
Job attainment	In FT employment(1)	20084	71.1	19720	70.0
	Seeking FT	8162	28.9	8446	30.0
Employment in final year of study	Yes(1)	21813	77.2	21138	75.0
	No	6433	22.8	7031	25.0
Attendance status	Mainly full-time	25107	88.9	24375	86.5
	Mainly part-time(1)	3139	11.1	3791	13.5
Study mode	Internal (on-campus)	24702	87.4	23647	84.0
	External (off-campus)	1286	4.6	1495	5.3
	Mixed mode*	2258	8.0	3024	10.7
Residency status	Domestic	24157	85.5	23450	83.3
	International(1)	4089	14.5	4716	16.7
Job search strategies	Traditional methods	18359	65.0	17975	63.8
	University methods	10360	36.7	10162	36.1
	Networking	10934	38.7	10996	39.0
Discipline	Agriculture, Building, Engineering and Surveying	3538	12.5	3862	13.7
	Arts, Humanities, Social Sciences and Education	7762	27.5	7247	25.7
	Business, Accounting, Economics and Law	9002	31.9	9493	33.7
	Medical and Health Science*	4784	16.9	4382	15.6
	Other Science	3160	11.2	3182	11.3
Institution type	Group of Eight (Go8)(1)	6206	22.0	6986	24.8
	Non-Go8	22040	88.0	21180	75.2

Table 2 Course quality predictors of job attainment

Construct and items	*Mean*		*SD*		*α*	
	2011	**2012**	**2011**	**2012**	**2011**	**2012**
Skill development:	3.933	3.939	0.628	0.629	0.840	0.843
The course helped me develop my ability to work as a team member The course sharpened my analytic skills. The course developed my problem-solving skills. The course improved my skills in written communication. As a result of my course, I feel confident about tackling unfamiliar problems. My course helped me to develop the ability to plan my own work.						
Graduate identity:	3.950	3.951	0.634	0.632	0.847	0.847
The course provided me with a broad overview of my field of knowledge. The course developed my confidence to investigate new ideas. University stimulated my enthusiasm for further learning. I learned to apply principles from this course to new situations. I consider what I learned valuable for my future. My university experience encouraged me to value perspectives other than my own.						
Course quality:	3.950	3.970	0.839	0.828		
Overall, I was satisfied with the quality of this course.						
Age	25.380	25.280	6.435	6.413		

Table 3 2012 logistic coefficients

	B	S.E.	Wald	Sig.	Exp(*B*)
Skill development	0.174	0.056	9.502	0.002*	1.190
Graduate identity	0.097	0.046	4.537	0.033*	1.102
Course quality	0.172	0.026	44.354	0.000*	1.187
Work experience	-0.229	0.135	2.863	0.091	0.795
Institution	0.321	0.034	86.487	0.000*	1.378
Attendance	0.172	0.051	11.517	0.001*	1.187
Internal mode	-0.025	0.048	0.276	0.599	0.975
External mode	-0.360	0.090	16.100	0.000*	0.697
Agriculture	-0.536	0.064	70.716	0.000*	0.585
Business	-1.000	0.052	363.329	0.000*	0.368
Arts	-1.294	0.054	580.800	0.000*	0.274
Other science	-1.220	0.062	385.472	0.000*	0.295
Disability	-0.128	0.079	2.583	0.108	0.880
Gender	0.313	0.181	2.985	0.084	1.367
Age	0.021	0.006	11.087	0.001*	1.021
Residency status	-1.398	0.039	1301.831	0.000*	0.247
Traditional job search methods	1.042	0.040	672.876	0.000*	2.836
University-based job search methods	0.133	0.033	16.662	0.000*	1.142
Networking job search methods	0.426	0.033	168.533	0.000*	1.530
AGE*Work experience	0.038	0.005	52.422	0.000*	1.039
Gender*Skill development	-0.086	0.045	3.649	0.056	0.917
AGE*Skill development	-0.011	0.002	37.007	0.000*	0.989

*Significant ($p<.05$)

Table 4 2011 logistic coefficients

	B	S.E.	Wald	Sig.	Exp(*B*)
Skill development	0.249	.058	18.353	0.000*	1.283
Graduate identity	0.106	0.046	5.221	0.022*	1.112
Course quality	0.115	0.026	19.914	0.000*	1.122
Work experience	0.040	0.140	0.081	0.776	1.041
Institution	0.348	0.037	88.498	0.000*	1.416
Attendance	0.142	0.058	5.949	0.015*	1.153
Internal mode	0.217	0.058	13.968	0.000*	1.242
External mode	-0.308	0.103	8.958	0.003*	0.735
Agriculture	-0.785	0.067	137.473	0.000*	0.456
Business	-1.132	0.055	418.888	0.000*	0.322
Arts	-1.611	0.055	842.727	0.000*	0.200
Other science	-1.339	0.065	426.602	0.000*	0.262
Disability	-0.441	0.092	23.167	0.000*	0.643
Gender	-0.159	0.185	0.741	0.389	0.853
Age	0.032	0.007	24.521	0.000*	1.033
Residency status	-1.437	0.042	1178.248	0.000*	0.238
Traditional job search methods	1.146	0.042	734.446	0.000*	3.145
University-based job search methods	0.057	0.033	2.920	0.088	1.058
Networking job search methods	0.488	0.033	217.782	0.000*	1.629
AGE*Work experience	0.034	0.005	38.939	0.000*	1.034
Gender*Skill development	0.015	0.046	0.109	0.741	1.015
AGE*Skill development	-0.014	0.002	56.370	0.000*	0.986

*Significant ($p<.05$)